WWW Response to *EPA Suggested Analyses

1) **Soil Samples (surface and 2 ft depth) from the riverbank at the former pump house**. The pump house was a clean (river) water intake only. There were neither point discharges of storm water nor significant sheet flow of storm water from the former tannery to this area. (Refer to the attached figure for a generalized storm water flow map for the former tannery.) Therefore, no sampling is necessary or appropriate. Refer to Item 4 for testing near the primary storm water discharge area from the tannery to the Rogue River.

2) **Sediment samples (surface and 1 ft depth) from the riverbank at the former pump house**. See response to Item 1. Furthermore, sediment from the vicinity of the pump house was routinely dredged to maintain intake efficiency. Therefore, sediment testing would not be representative of the actual river sediment.

3) **Soil Samples (surface and 2 ft depth) and two sediment samples (one surface and one 1 ft deep) at the cove** . . . . The only known discharge in this area was noncontact cooling water from the former power house. This discharge would not have contained significant concentrations of hazardous substances and ceased several decades ago. There were neither point discharges of storm water nor significant sheet flow of storm water from the former tannery to this area. Therefore, sampling is not necessary based on historical tannery operations. Since the cove may be a natural sediment deposition area, WWW proposes to take sediment samples at one location at the cove/WWTP peninsula junction. Refer to Item 4 below.

4) **Soil Samples (three surface and three 2 ft deep) and sediment samples (three surface and three 1 ft deep) in the curved bank of the WWTP**. WWW proposes four soil and four sediment sampling locations. Soil will be collected at the surface and 2 ft deep, sediment (surface and 1 ft deep) will be collected 5 to 10 ft from the bank out from the soil sampling locations. One sampling location will be in the "cove" and one will be near the confluence of Rum Creek and the Rogue River. A third will be located near the low area where storm water flows overland from the tannery site to the Rogue River. See the attached map for locations. Soil and sediment samples will be tested for calcium (calcium is in lime used in the tannery process) as well as total and hexavalent chromium. There are sufficient indicators for tannery process substances.

5) **Sediment samples at the confluence of Rum Creek and the Rogue River**. Sediment sample proposed, refer to Item 4.

6) **Four Geoprobe samples at the WWTP**. WWW proposes three additional soil borings, two near the former location of stained soil which was removed and one at the former clarifier. The three soil samples will be tested for arsenic, ammonia, sulfide, cyanide, calcium, and total and hexavalent chromium. WWW has already installed two monitoring wells and four piezometers in this area. Samples from the monitoring wells were tested for an extensive list of hazardous substances. WWW already will be

* EPA suggestions are in bold font

sampling groundwater from these six points. These groundwater samples will be tested for ammonia, arsenic, and reactive cyanide. Consistent with MDEQ guidance, sampling from the monitoring wells and piezometers provides more representative groundwater data than samples from temporary monitoring wells or samples from drilling tools.

7) **Four Geoprobes from around the "pit" following the same procedure as for the WWTP samples**. WWW proposes three additional soil borings/samples from this area - one each south, west, and north of the pit. One sample from each boring will be tested for ammonia, calcium, sulfide, and total and hexavalent chromium. [Note the western soil sample will be near the former loading dock area.] WWW previously installed one monitoring well in this area and will be installing two additional groundwater monitoring wells in this area. Groundwater from all three of these monitoring wells will be tested for the long list of hazardous substances used in the prior round of testing.

8) **Four additional Geoprobes to cover the remaining areas**. WWW will install a soil boring near the former location of geotechnical boring TE-11. WWW will collect one soil sample from this boring and test for PNAs, ammonia, sulfide, and total and hexavalent chromium. [Note this location is also near southeastern side of the "pit."] One fuel oil UST was closed in place decades ago. WWW proposes one boring near the western side of that UST. One soil sample will be tested for MDEQ Op. Memo 14 VOCs and PNAs. WWW also proposes a soil boring and sample from the older (eastern) portion of the tannery, near the former process sewer lines. One soil sample will be collected at that location and tested for VOCs, SVOCs, calcium, and total and hexavalent chromium.

9) **Sediment samples at all the outfalls flowing into Rum Creek**. All outfalls into Rum Creek are and have been used only for storm water. Rum Creek flows rapidly through this area and there is very little sediment deposition. WWW proposes collecting sediment samples from the confluence of Rum Creek and the Rogue River, which is the location where any solids discharged would settle and accumulate. Refer to Item 4.

While not on EPA's request list, WWW also proposes the following work:

10) Measure hydraulic gradient and perform slug tests to estimate hydraulic conductivity at the two monitoring wells and four piezometers near the former WWTP. These will be used to estimate the groundwater flow velocity and flux to the Rogue River.

11) Take sediment samples at one "background" (western side of the Rogue River) and two "upgradient/background" locations. The sediment will be tested for calcium and total and hexavalent chromium. A field tour will be performed to determine the specific sampling locations.

12) Collect soil samples (surface and 2 feet deep) from one upgradient location along the river bank. These samples will be tested for calcium and total and hexavalent chromium.

13) Collect pore water at two depths from four locations in the Rogue River around the WWTP peninsula. Pore water will be collected approximately 0-6 and 18 inches below the river bottom. Temperature, conductivity, and pH will be measured during sampling. Based on the results of groundwater testing at the four piezometers, WWW may decide to analyze these samples for ammonia, arsenic, and reactive cyanide. If the piezometers show that ammonia, arsenic and reactive cyanide are below either generic GSI criteria or presumptive or obvious mixing zone adjusted GSI criteria, these pore water samples will not be analyzed. Appropriate "shelf-life" periods for performing analyses for these parameters will be followed.

Consistent with WWW's prior investigation, WWW will obtain Brighton Analytical's standard data package (not a Level 4 QA/QC). This data package is sufficient to support the level of effort proposed.

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